

11-07-2006

U.S. DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office



HEET

103333244

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below

**1. Name of conveying party(ies)**

David Crouch

**2. Name and address of receiving party(ies)**

Name: Raytheon Company

Internal Address: \_\_\_\_\_

Street Address: 870 Winter Street

City: Waltham

State: Massachusetts

Country: USA Zip: 02451-1449

Additional name(s) & address(es) attached? ☐ Yes ☒ No

Additional name(s) of conveying party(ies) attached? ☐ Yes ☐ No

**3. Nature of conveyance/Execution Date(s):**

Execution Date(s) 10/24/2006

- ☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Joint Research Agreement  
☐ Government Interest Assignment  
☐ Executive Order 9424, Confirmatory License  
☐ Other \_\_\_\_\_

**4. Application or patent number(s):**

☒ This document is being filed together with a new application.

A. Patent Application No.(s)

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

**5. Name and address to whom correspondence concerning document should be mailed:**

Name: Benman, Brown & Williams

Internal Address: Suite 2740

Street Address: 2049 Century Park East

City: Los Angeles

State: CA Zip: 90067

Phone Number: (310) 553-2400

Fax Number: (310) 553-2675

Email Address: \_\_\_\_\_

**6. Total number of applications and patents involved: 1**

**7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00**

- ☒ Authorized to be charged by credit card  
☐ Authorized to be charged to deposit account  
☐ Enclosed  
☐ None required (government interest not affecting title)

**8. Payment Information**

a. Credit Card Last 4 Numbers 4001  
Expiration Date 06/07

b. Deposit Account Number \_\_\_\_\_

Authorized User Name \_\_\_\_\_

**9. Signature:**

W. J. Benman

Signature

10/30/2006

Date

William J. Benman

Name of Person Signing

Total number of pages including cover sheet, attachments, and documents: 4

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

**PATENT**  
**REEL: 018492 FRAME: 0534**

## ASSIGNMENT

Attorney Docket No. PD06W075  
Page 1 of 2

WHEREAS, I, as below named sole inventor (if only one name is listed below) or joint inventor (if plural names are listed below) of the city and state as stated below next to my name, have invented a (an)

**ACTIVE TRANSMIT ARRAY WITH MULTIPLE PARALLEL RECEIVE/TRANSMIT PATHS PER ELEMENT**

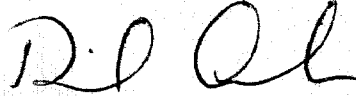
for which application for Letters Patent of the United States has been executed by me or (*if the following is completed*) was filed as Application No. \_\_\_\_\_ on \_\_\_\_\_, and

WHEREAS, RAYTHEON COMPANY (hereinafter referred to as RAYTHEON), a Delaware corporation, having its principal place of business in Waltham, Massachusetts, is desirous of acquiring the entire and exclusive right, title and interest in, to and under said invention, said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world;

NOW, THEREFORE, in consideration of the obligations voluntarily assumed by me and set forth in an invention agreement between me and my employer, effective the date as stated below next to my name, and other good and valuable consideration, receipt of which is hereby acknowledged, I do hereby sell, assign and transfer to RAYTHEON, its successors, assigns or other legal representatives, the entire and exclusive right, title and interest in and to said invention invented by me, to said application and any and all applications which are continuations, continuations-in-part, divisions or substitutes of said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world on any of said applications and to any and all reexaminations, reissues, renewals or extensions of said Letters Patent in the United States and throughout the world for the full term or terms for which said Letters patent may be granted in the United States and throughout the world; authorize and request the Director of the United States Patent and Trademark Office and all foreign countries to issue all such Letters Patent to said RAYTHEON, its successors, assigns or other legal representatives; covenant that no assignment, sale, agreement, transfer or encumbrance has been, or will be, made or entered into which would conflict with this assignment, sale and transfer; and agree to communicate to RAYTHEON, its successors, assigns or other legal representatives, upon request and at no cost or expense to me, any facts known by me respecting said invention, do all lawful acts, including the execution and delivery of all papers and proper oaths and giving of testimony that is deemed necessary or desirable by RAYTHEON, its successors, assigns or other legal representatives with regard to said invention

for protecting, obtaining, maintaining and enforcing any and all of said Letters Patent in the United States and throughout the world for said invention and for perfecting, affirming, recording and maintaining the title of RAYTHEON, its successors, assigns or other legal representatives, and generally cooperate to the fullest extent in all matters pertaining to said invention, and any and all of said Letters Patent and the title thereto in RAYTHEON, its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, I have executed this instrument.

FULL NAME OF SOLE OR JOINT INVENTOR DAVID CROUCH	INVENTOR'S SIGNATURE 	DATE SIGNED 10/24/06
RESIDENCE (CITY AND STATE) CORONA, CA		INVENTION AGREEMENT DATE

COUNTY OF \_\_\_\_\_  
PROVENCE OF \_\_\_\_\_ ) ' See attachment

On \_\_\_\_\_, 2006, before me, \_\_\_\_\_, a  
Commissioner in and for said Providence, personally appeared \_\_\_\_\_

☐ personally known to me or ☐ proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, executed the instrument.

WITNESS my hand and official seal.

Commissioner \_\_\_\_\_

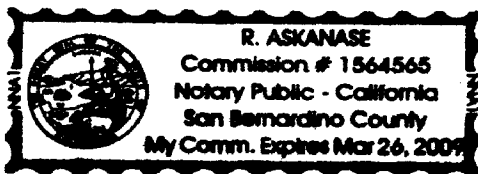
MY COMMISSION EXPIRES

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of San Bernardino } ss.

On 24 Oct 2006, before me, R. Askanase, Notary Public  
Date Name and Title of Officer (e.g., "Jane Doe, Notary Public")  
personally appeared David D. Crouch  
Name(s) of Signer(s)



☒ personally known to me

☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Place Notary Seal Above

R. Askanase  
Signature of Notary Public

## OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

### Description of Attached Document

Title or Type of Document: Patent Assignment PDO6W075

Document Date: 10/24/06 Number of Pages: 2

Signer(s) Other Than Named Above: \_\_\_\_\_

### Capacity(ies) Claimed by Signer(s)

Signer's Name: D. D. Crouch

- ☒ Individual  
☐ Corporate Officer — Title(s): \_\_\_\_\_  
☐ Partner — ☐ Limited ☐ General  
☐ Attorney in Fact  
☐ Trustee  
☐ Guardian or Conservator  
☐ Other: \_\_\_\_\_

Signer Is Representing: \_\_\_\_\_

RIGHT THUMBPRINT  
OF SIGNER  
Top of thumb here

Signer's Name: \_\_\_\_\_

- ☐ Individual  
☐ Corporate Officer — Title(s): \_\_\_\_\_  
☐ Partner — ☐ Limited ☐ General  
☐ Attorney in Fact  
☐ Trustee  
☐ Guardian or Conservator  
☐ Other: \_\_\_\_\_

Signer Is Representing: \_\_\_\_\_

RIGHT THUMBPRINT  
OF SIGNER  
Top of thumb here